

quality of southern cattle and the economy of the entire area. The total cost to Federal, State, and county governments of their cooperative conquest in eliminating this parasite has amounted to little more than the toll taken from the South in a single year by the fever tick before eradication work was started.

T. W. COLE, a veterinarian, as chief of the Public Stockyards Inspection Section, Animal Disease Eradication Branch, performs many activities in connection with the

interstate movement of livestock. He spent 21 years combating the cattle fever tick in Texas and Florida and formerly was in charge of tick eradication activities.

WM. M. MACKELLAR was formerly principal veterinarian in charge of cattle tick eradication and other disease control activities of the Department. When co-operative cattle tick eradication was inaugurated in 1906, he directed the work in California. Later he directed a similar activity in Georgia. He retired in 1948 after nearly 48 years of service in the Department of Agriculture.

## Infectious Keratitis, or Pinkeye, in Cattle

R. S. SUGG

INFECTIOUS KERATITIS—pink-eye—has been recognized as a contagious disease in cattle since 1889.

The eyelids swell. A discharge is watery at first and later contains mucus and pus. The lining of the lids becomes red and congested. Often a pink or red ring surrounds the white part of the eyeball. The eyes are closed. The animal shows evidence of pain, especially when it is in bright sunlight. The eyeball becomes cloudy and the animal may be unable to see for several days. Ulcers may form in severe cases on the front of the eye near the pupil. Sometimes the eyeball is destroyed and the animal becomes blind.

The disease occurs all over the world and may appear at all seasons. It is most commonly seen in summer. It affects animals of all ages, but animals under 2 years of age seem to be most susceptible.

THE CAUSE of pinkeye has not been determined definitely. The disease can be spread by transferring the secretions from the eye of an affected animal to a

normal susceptible animal. If the secretions are filtered through filters that remove all germs, the filtrate will not produce the disease—an indication that the disease is caused by a germ and not a virus.

The secretions usually contain several species of bacteria. The most common are the common pus-forming germs, the *staphylococcus* group; bacteria that usually are found in manure, the *colon* group; and *Corynebacterium*. An organism known as *Hemophilus bovis* or *Moraxella bovis* usually is associated with the disease.

Ralph D. Barner, of Kansas State College, isolated *H. bovis* (*M. bovis*) from 92 of 95 acute cases in cattle. He reproduced the disease in farm animals with pure cultures of *H. bovis*. C. H. Gallagher, of McMaster Laboratory, Sidney, Australia, also produced the disease with pure culture of *H. bovis*. Herman Farley, of Oklahoma Agricultural and Mechanical College, however, was unable to produce the disease with pure culture, and considered *H. bovis* as a secondary invader.

Infectious keratitis is usually introduced into herds by newly purchased animals that have been exposed to infection while in transit. Sometimes the disease appears, but no source of infection can be found. It is possible that cattle that have recovered from the disease may be able to spread the infection for several months after all symptoms have disappeared.

Beef cattle affected with pinkeye usually lose weight because they cannot find their way about the pasture to graze. The milk flow drops. Nursing calves lose weight. Young calves may become temporarily blind and unable to follow their dams. Cattle, unable to see where they are going, may hurt themselves by falling in ditches, ravines, and waterholes.

Production in dairy cattle may drop 25 percent or more.

CONTROL MEASURES consist of good herd management. There are no specific vaccines, bacterins, or serums that will prevent the disease. Affected herds must be given daily attention to see that they get feed and water and are kept out of ditches and other places where they may get hurt.

Because flies and gnats probably spread the disease, spraying the herd with fly repellents and insecticides at regular intervals will help reduce the number of animals affected. Newly purchased animals should be kept isolated for at least 60 days before being allowed to mingle with the rest of the herd.

Herd treatment of wild pasture cattle is not practicable. Handling the cattle through chutes daily would do more harm than the treatment would do good. Individual animals that are tractable or halter broken should be placed in dark stalls and treated by a veterinarian.

Mild antiseptic eyewashes and antibiotics have proved of value in individual cases. Argyrol, a 2-percent solution of zinc sulfate, mercurochrome (2 to 4 percent), and a 1-percent solution of silver nitrate have been used. The antibiotics usually used are Chloromycetin ointment (1 percent), Terramycin pellets, and penicillin solution or ointment.

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## *Bovine Coccidiosis*

LEONARD REID DAVIS AND GEORGE W. BOWMAN

COCCIDIOSIS is an extremely common but usually overlooked disease that weakens or kills many calves before they are 6 months old.

Coccidiosis is a parasitic protozoan disease. It is produced by small, one-celled organisms of the genus *Eimeria* (Protozoa). Eleven species have been reported in cattle in this country. Most of these species are found in varying numbers on routine examinations of

young calves. As a result of a natural infection on the farm, sometimes as many as eight species may be found in one examination.

Coccidiosis has been considered the third most important parasitic disease in cattle, even though some investigators have overlooked it as one of the causes of scours in calves. It has been reported that coccidiosis in cattle may produce as great an economic loss as